AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A one-piece channel sleeve for a plasma processing chamber comprising:

~~a one-piece~~ an outer portion configured for insertion into an aperture through a wall of the plasma processing chamber, said ~~one-piece~~ outer portion consisting of an electrically insulative material and having dimensions effective to prevent or inhibit plasma arcing to an electrically conductive surface of said wall of said plasma processing chamber exposed by said aperture through said wall of said plasma processing chamber, said ~~one-piece~~ outer portion further comprising:

(i) a flange section having a dimension greater than a corresponding dimension of said aperture, such that said flange section contacts a portion of an outside surface of said wall surrounding said aperture when said channel sleeve is inserted in said aperture through said wall of said plasma processing chamber;

(ii) a lower section having a shape and dimensions approximately the same as a corresponding shape and dimensions of said aperture, wherein said lower section is configured to fit securely into said aperture; and

(iii) an inner opening communicating through the electrically insulative material between a bottom and a top of the

outer portion, wherein said inner opening transfers a spectroscopic endpoint detection signal.

2. (PREVIOUSLY PRESENTED) A plasma processing chamber having:

at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, and

the channel sleeve of Claim 1 inserted into the at least one aperture.

3. (PREVIOUSLY PRESENTED) A method of making a plasma processing chamber, the chamber having at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, the method comprising inserting the channel sleeve of Claim 1 into the at least one aperture.

4. (PREVIOUSLY PRESENTED) A method of processing a workpiece, comprising the following steps:

(A) exposing the workpiece to a plasma in the plasma processing chamber of Claim 2; and

(B) transmitting the spectroscopic endpoint detection signal through the channel sleeve out from the plasma processing chamber.

5. (PREVIOUSLY PRESENTED) A plasma processing chamber having:

a wall;

at least one aperture through said wall, the at least one aperture having an exposed electrically conductive surface of said wall, and

a one-piece sleeve configured for insertion into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the wall;

(ii) a flange section having a dimension greater than a corresponding dimension of said aperture, such that said flange section contacts a portion of an outside surface of said wall surrounding said aperture when said one-piece sleeve is inserted in said aperture;

(iii) a lower section having a shape and dimensions approximately the same as a corresponding shape and dimensions of said aperture, wherein said lower section is configured to fit securely into said aperture; and

(iv) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-

piece sleeve, wherein said inner opening transfers a spectroscopic endpoint detection signal.

6. (PREVIOUSLY PRESENTED) A method of making a plasma processing chamber having a wall, the method comprising:

(A) forming at least one aperture through said wall, the at least one aperture having an exposed electrically conductive surface of said wall; and

(B) inserting a one-piece sleeve into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the wall;

(ii) a flange section having a dimension greater than a corresponding dimension of said aperture, such that said flange section contacts a portion of an outside surface of said wall surrounding said aperture when said one-piece sleeve is inserted in said aperture;

(iii) a lower section having a shape and dimensions approximately the same as a corresponding shape and dimensions of said aperture, wherein said lower section is configured to fit securely into said aperture; and

(iv) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-piece sleeve, wherein said inner opening transfers a spectroscopic endpoint detection signal.

7. (PREVIOUSLY PRESENTED) The method of Claim 6, further comprising, prior to inserting said one-piece sleeve, the step of forming said bottom of said one-piece sleeve to a plane having a non-orthogonal angle relative to said inner opening.

8. (PREVIOUSLY PRESENTED) A method of processing a workpiece, comprising:

(A) exposing the workpiece to a plasma in a chamber, the chamber having (1) a wall, (2) an aperture through said wall, said aperture having an exposed electrically conductive surface of said wall, and (3) a one-piece sleeve inserted into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the wall,

(ii) a flange section having a dimension greater than a corresponding dimension of said aperture, such that said flange section contacts a portion of an outside surface of said

wall surrounding said aperture when said one-piece sleeve is inserted in said aperture;

(iii) a lower section having a shape and dimensions approximately the same as a corresponding shape and dimensions of said aperture, wherein said lower section is configured to fit securely into said aperture; and

(iv) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-piece sleeve, wherein said inner opening transfers a spectroscopic endpoint detection signal; and

(B) transmitting the spectroscopic endpoint detection signal to outside the chamber through the one-piece sleeve.

9. (PREVIOUSLY PRESENTED) A method of operating a plasma processing chamber, wherein the chamber has at least one aperture therein and the aperture has an exposed electrically conductive surface, the method comprising the steps of:

(A) initiating a plasma in the chamber, the aperture having the channel sleeve according to Claim 1 therein, then

(B) cleaning the chamber and the channel sleeve.

10. (ORIGINAL) The method of Claim 9, wherein said plasma exists in said chamber for a predetermined period of time.

11. (PREVIOUSLY PRESENTED) The method of Claim 9, further comprising, prior to step B, the steps of:

exposing a workpiece to the plasma, wherein said spectroscopic endpoint detection signal through the inner opening of said channel sleeve indicates an etching endpoint.

12. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 1, wherein

said flange section has a width that is greater than a corresponding width of said aperture.

13. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 12, wherein said channel sleeve applies a predetermined amount of pressure against an inner wall of said aperture.

14. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 12, wherein said lower section has a first length and said flange section has a second length.

15. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 14, wherein said first length is greater than a length of said aperture.

16. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 1, wherein an outer surface of said channel sleeve forms an angle with reference to the bottom of said channel sleeve.

17. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 16, wherein said angle is non-orthogonal.

18. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 1, wherein said inner opening transfers said spectroscopic endpoint detection signal without attenuation.

19. (PREVIOUSLY PRESENTED) The plasma processing chamber of claim 2, wherein said at least one aperture comprises an endpoint detection channel of an upper chamber of a plasma etching apparatus.

20. (PREVIOUSLY PRESENTED) The channel sleeve according to claim 1, wherein the electrically insulative material is selected from the group consisting of ceramics, multi-crystal ceramics, polyvinyl polymers, polytetrafluoroethylene, polyethylene, polypropylene, polyimides, polycarbonates and single crystal insulative minerals.